# DEVICE FOR DIMENSIONAL MEASURING AND CONTROL OF OPTICAL FIBER DEFECTS IN PRODUCTION

## ABSTRACT OF THE INVENTION

Disclosed is a device for absolute, high-speed measurement of a diameter of an optical fiber and for detecting defects in the fiber, comprising two complementary signal processing systems including first and second sensors and first and second processing boards wherein angular calibration of the sensors is performed by directly deducing the absolute diameter of the fiber from the equations (4) and (7):

(4) $f(n, \theta) = \sin(\theta/2) + [n^2 + 1 - 2*n*\cos(\theta/2)]^{1/2}$

(7) $M = [A/(B + \theta)]*[1 + \sin^2\{N(D,\theta)*\pi+\varphi\}]$,

in which n represents N1 index of a substance, $\theta$ is a measurement angle, D is outer diameter, A is a signal amplitude in volts, B is a measurement angle, and M is a signal amplitude.